

TOLSTONOGOVA, V.I. (Khabarovsk)

Cooling off with chlorethyl in the treatment of neuralgic syndromes. Klin.med. 34 no.8:76-77 Ag '56. (MIRA 12:8)

1. Iz kliniki nervnykh bolezney (zav. - prof. B.K.Serebryanik) Khabarovskogo meditsinskogo instituta.

(NEURALGIA, ther.

ethyl chloride spray)

(ETHYL CHLORIDE, ther. use
neuralgia)

1ST AND 2ND COLUMNS										PROCESSES AND PROPERTIES INDEX										3RD AND 4TH COLUMNS									
<p><i>Handwritten:</i> 115</p> <p>The physicochemical basis of specificity of staining and of drug action. Alexander V. Tolstoukhov. <i>Bull. Russ. Med. Soc. N. Y. City 15th Anniv. Vol. 47-50(1939)</i> (In English).—A review. C. S. Shapiro</p>																													
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																													
1ST AND 2ND COLUMNS										3RD AND 4TH COLUMNS										5TH AND 6TH COLUMNS									

SHCHEPOT'YEV, F.L.; TOLSTOPLET, A.Ya.; NAVALIKHINA, N.K.

Growth and frost resistance of oak (*Quercus robur* L.) treated with gibberellin. Dokl.AN SSSR 138 no.4:966-969 Je '61. (MIRA 14:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut lesnogo khozyaystva i agrolesomeliyatsii, Khar'kov. Predstavleno akademikom V.N. Sukachevym.

(Gibberellins) (Plants—Frost resistance) (Oak)

Tolstoplet, A.Ya.

USSR/Forestry -

J-4

Abs Jour : Referat Zhur - Biologiya, No 16, 25 Aug 1957, 69122

Author : Tolstoplet, A.Ya.

Inst :

Title : Agrotechnical Means of Increasing the Productivity of
Spindle tree on Open Plantings.

Orig Pub : Nauch. tr. Ukr. n.-i. in-ta les. kh-va i agrolesmometior.,
1956, No 18, 81-94

Abstract : An experiment is described in initiating planting of
European spindletrees in the district of Kharkov. The
data of soil preparation, addition of organic and mine-
ral fertilizers, density and manner of planting in crea-
tion of plantations of European spindletree are given.
It is noted that a deep planting under ploughing leads
to a high productivity due to additional roots, which de-
velop from stems. The spindletree productivity is also
increased by wrapping the stem from 15-20 cm from the

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USSR/Forestry -

J-4

Abs Jour : Referat Zhur - Biologiya, No 16, 25 Aug 1957, 69122

ground. Also effective is the use of annual feeding of the soil and above-root growth. Stump planting is conditioned by intensity of root growth and increased synthesis of gutta in the root bark. This operation is performed in the third year after planting the seedlings. There are stated the norms, proper periods and the technique of conducting root and above-root supplementary feeding of NPK on loamy, exhausted soils.

Card 2/2

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MEDVEDEV, I.A.; BEL'GOL'SKIY, B.P.; GLIKMAN, E.S.; SPASOV, A.A.;
TOLSTOPYAT, A.A.

Methods of dividing production expenditures into constant and
fluctuating ones. Stal' 23 no.8:748-752 Ag '63. (MIRA 16:9)

1. Dnepropetrovskiy metallurgicheskiy institut i Pridneprovskiy
sovet narodnogo khozyaystva. (Metallurgy--Costs)

MEDVEDEV, I.A., kand.tekhn.nauk; SPASOV, A.A., inzh.; TOLSTOPYAT, A.A., inzh.

Using correlation analysis for determining the specific consumption
of coke. Stal' 24 no.7:647-650 J1 '64.

(MIRA 18:1)

1. Dnepropetrovskiy metallurgicheskiy institut i Pridneprovskiy
sovet narodnogo khozyaystva.

TOLSTOPYAT, A.I.; KAYUROV, V.S., red.; SAYTANIDI, L.D., tekhnred.

[Loading cartridges with buckshot] Snaryazhenie patronov
k drobovomu ruzh'iu. Moskva, Gos.izd-vo "Fizkul'tura i sport,"
1953 p. 130 p. (MIRA 13:7)
(Cartridges)

TOLSTOPYAT, A. I.

Agriculture

Hunting guns and their ammunition. (Moskva), Fizhul'tura i sport, 1951.

Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED

LITVINENKO, A.D., dotsent; ANTONYUK, I.G.; KABARDIN, N.Ye.; TOLSTOPYATOV,
E.A.

Methodology of internal compressing metallo-osteosynthesis with
osteoplasty. Ortop., travm. i protez. 25 no.1:34-38 Ja '64.
(MIRA 17:9)

1. Iz Ukrainского instituta ortopedii i travmatologii (dir. - dotsent
I.P.Alekseyenko, nauchnyy rukovoditel' - chlen-korrespondent AMN SSSR
prof. F.R.Bogdanov). Adres avtorov: Kiyev, ul. Vorovskogo, 27,
Institut ortopedii i travmatologii.

FAVORSKAYA, T.A.; TOLSTOPYATOV, G.M.; GAL'DING, M.R.

Synthesis and study of the transformations of acetylenic α -glycols. Part 9: Molecular rearrangements observed in the reactions of 3,4-dimethyl-1-hexyne-3,4-diol with hydrochloric acid. Zhur. ob. khim. 35 no.4:593-597 Ap '65.
(MIRA 18:5)

1. Leningradskiy gosudarstvennyy universitet.

PLEVAKO, Boris Matveyevich. Prinimal uchastiye TOLSTOPIATOV, K.S..
KAGANOV, V.Yu., red.; VAGIN, A.A., red.izd-va; DOBUZHINSKAYA,
L.V., tekhn.red.

[Temperature control and the introduction of automatic control
of thermal processes in heating furnaces] Kontrol' temperatury
i avtomatizatsiia teplovoi raboty nagrevatel'nykh pechei.
Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po cherno i tsvetnoi
metallurgii, 1959. 165 p. (MIRA 13:2)
(Furnaces, Heating) (Thermocouples) (Automatic control)

TOKAREV, V.V.; TOLSTOPYATOV, K.S.; OKUNEV, L.R.

Voltage regulator for supplying measuring circuits of electronic
potentiometers. Sbor.rats.predl.vnedr.v proizvod. no.1:37-38 '61.
(MIRA 14:7)

1. Zavod "Elektrostal'."
(Voltage regulators)

TOLSTOPIATOV, N.I.

Fastening of line insulators having annular threads. Avtom.
telem. i sviaz' 3 no.1:23 Ja '59. (MIRA 12:1)

1. Nachal'nik Embinskoy distantzii signalizatsii i svyazi
Kazakhskoy dorogi.
(Electric insulators and insulation)

TOLSTOPYATOV, N.I.; MAKAROV, G.T., inzhener distantsii

Direct-current converter for automatic block systems. Avtom., telem.
i svyaz' 2 no.11:22 N '58. (MIRA 11:12)

1.Nachal'nik Embinskey distantsii signalizatsii i svyazi Kazakhskoy
deregi.

(Electric current converters)

TOLSTOPYATOV, P.I., gornyy inzh.

Mining steep seams without a haulageway along the coal bed.
Ugol' 34 no.10:6-7 0 '59. (MIRA 13:2)

1.Nachal'nik shakhty "Krasnyy Profintern".
(Coal mines and mining)

SHUL'GA, A.O., prof.; TOLSTOV, Yu.P.

Otogenic abscesses of the brain. Vest.otorin. 21 no.3:48-53
My-Je '59. (MIRA 12:9)

1. Iz kliniki bolezney ukha, gorla i nose (zav. - prof.A.O.
Shul'ga) Orenburgskogo meditsinskogo instituta.
(BRAIN, abscess
otogenic, progn. (Rus))
(OTITIS, compl.
brain abscess, progn. (Rus))

TOLSTOVA, A.G., Cand Bio Sci--(diss) "Intestinal microflora and its
significance in ~~the~~ ^{ascarid} invasion and ~~in the~~ anthrax infection." L'vov, 1958.
16 pp (Min of Agr USSR. L'vov Zoo-Vet Inst), 150 copies (KL, 16-58, 140)

- 30 -

TOLSTOPYATOV, Ivan Vasil'yevich; ROMANENKO, V.P., red.; TSYURKO, M.I.,
tekhn. red.

[Mass-political work in sowing] Massovo-politicheskaia rabota na seve;
iz opyta raboty partiinoi organizatsii kolkhoza im. Michurina, Ak-
Bulakskogo raiona, Orenburgskoi oblasti. Orenburg, Orenburgskoe knizh-
noe izd-vo, 1960. 23 p. (MIRA 14:12)
(Akbulak District--Sowing)

Y
TOLSTOPIATOV, V. M.

Planirovanie transporta. [The planning of transportation]. (In Egorov, K. D. Proizvoditel'nye sily Tsentral'no-promyshlennoi oblasti. Moskva, 1925, p. 263).
DLC: HC355.E4

Transport i khoziaistvo. [Transportation and the economy]. g. 1- 1926- Moskva.
v.(1) fold, map, diagrs.
NN

DLC: HE7.T68

Transport i narodnoe khoziaistvo. [Transportation and the national economy]. Neperiodicheskie sborniki. Moskva, 1923-24. 5 v. in 1. "Collection of articles and analysis by Mernstein-Kogan and others." Contents- v.1. Transportation and finances.-v.2. Transportation as an industry market.- v. 3. Transportation problems in international treaties.-v.4. Poplavskii, I. A. Estimate of national income from transportation.-v.5. Railroad rates.-

DLC: HE255.T7

Transport in the Soviet Union: 1. Reconstruction and development. 2. Expansion and reform-elektrification of railways. 3. Railways and waterways compared - linking the great rivers. 4. Road development. 5. Road expansion and airlines. (Modern transport, Sept. 27, v.46, p.9; Oct. 4, p. 11; Oct. 18, p. 11; Nov. 1, p. 13-14; Nov. 15, p. 7, 1941).

DLC: HE1.M6

(cont.)

Y
TOLSTOPIATOV, V. M.

Transport in the Soviet Union - the five-year plan. (Modern transpost, April 1, 1933, v.29, p. 4).

DBRE

DLC: HE1.M6

Transport Severnogo Kavkaza. [Transportation in North Caucasus]. Transportnyi, nauchno-tekhnicheskii i ekenomicheskii zhurnal. Rostov-na-Donu, 192- (monthly). v. illus., tables. [Published by Direktsiia Severo-Kavkazskoi zheleznoi dorogi].
NN

Transportation and communication. (In Economic review of the Soviet Union, 1934, monthly-).

DLC: HC331.E3

Transportnoe stroitel'stvo. [Transport construction]. IUL', 1931- Moskva, 1931- v. (1). illus., maps, diags. (monthly).

DLC: HE7.T7

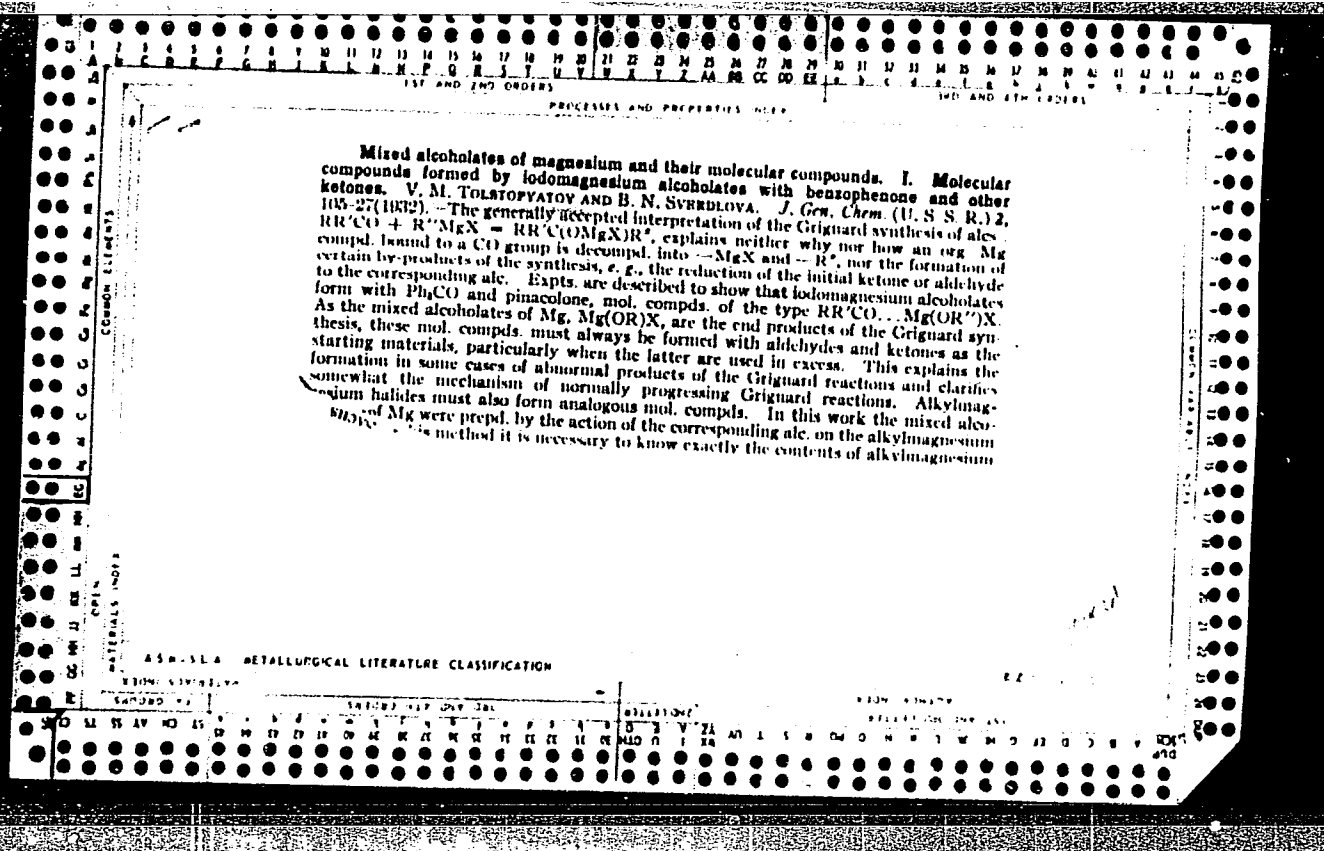
SO: Soviet Transportation and Communications, A. Bibliography, Library of Congress, Reference Department, Washington 1952. Unclassified.

FAVORSKAYA, T.A.; TOLSTOPYATOV, G.M.

Synthesis and study of transformations of acetylenic α -glycols. Part 8: 3,4,5,5-Tetramethyl-1-hexyne-3,4-diol and 3-methyl-1-hexyne-3,4-diol and their transformations under the effect of concentrated sulfuric acid. Zhur.ob.khim. 33 no.10:3160-3166 0 '63. (MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

COMMON ELEMENTS																										PROCESSES AND PROPERTIES INDEX																										OPEN																									
COMMON ELEMENTS																										PROCESSES AND PROPERTIES INDEX																										OPEN																									
<p><i>CA</i></p> <p>The preparation of pentamethylethanol and the ketol rearrangement of pinacolin. V. M. TOLSTUPYATOV. <i>J. Russ. Phys. Chem. Soc.</i> 62, 1813 (1930). —In the aliphatic series the Grignard synthesis of carbinols from aldehydes and ketones is invariably accompanied by side reactions, e. g., condensation. Since pentamethylethanol (I) can be obtained in 10% yield from pinacolin (II) and MeMgBr or MeMgI, this reaction has been regarded as exceptional. T. now shows that there is a side reaction here giving 2,2,3,6,6-pentamethyl-3,5-heptanone (III) in 6% yield which results from the condensation of 2 mols. of II. In the purification of I, III distils as a light oil, partly with I, partly after it. Therefore I when distd. with steam always contains III as shown by the yellow color which develops in the light. By drying the Et₂O soln. of I and III several days with Na₂SO₄ and distg. at ordinary pressure, I is obtained free from H₂O of crystn. Distn. at 15 mm. then gives more of I, followed by III. III is always accompanied by an unsatd. ketone (IV) which can be removed only by many distns. III is a colorless liquid, b_m 100°, d₄²⁰ 0.8071, mol. refraction 58.71. It is suggested that the agent responsible for the rearrangement of II is Me₂CCMe₂OMgI (V). One mol. II with 1/2 mol. V or 1/2 mol. BuOMgBr gave 20% III. The low yield is due to the highly branched chain and the accumulation of Me groups which decrease the tendency to rearrangement. The 3 samples of III obtained as just described were identical. III can be distd. unchanged <i>in vacuo</i>, but traces of I₂ cause decompn. Heating III with anhyd. H₂C₂O₄ at ordinary pressure gives IV, colorless liquid with faint odor, b_m 81°, b_m 91°, b_m 105.5–6.0°, d₄²⁰ 0.8432, mol. refraction 58.08. Oxidation of IV with 4% KMnO₄ gave II and Me₂CCO₂H but no HCO₂H. IV therefore is Me₂CCMe:CHCO₂Me. Semicarbazone of IV m. 117–8° from aq. EtOH. NH₂OH.HCl and NaOH in aq. EtOH give 2 oximes: VI, m. 73–82° (not purified), obtained by pouring the reaction mixt. into H₂O, and VII, m. 110–17.5°, extd. from the filtrate from VI by Et₂O. The structures of VI and VII were not detd.</p> <p>Lewis W. Butts</p>																																																																													
<p>ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>REGIONAL DIVISION</p> <p>RECORD #</p> <p>RECORD REF ONLY</p> <p>RECORD ONLY</p> <p>RECORD ONLY</p>																																																																													



in the prep. soln. of org. Mg compd. and that of Mg halide in the latter. Alkyl magnesium halide was detd. by the method of titration with H_2SO_4 (Gilman, *et al.*, C. A. 17, 630) and I by the Volhard method. $EtOMgI$ was obtained in 60% yield by adding the calcd. amt. of $EtOH$ to a clarified soln. of $EtMgI$ in Et_2O . The sepn. of crystals from the lower layer begins in 2 days and is completed in 6 days. In some cases inoculation with $EtOMgI$ was required to start crystn. The upper layer of Et_2O contained MgI_2 in proportion to the amt. of $EtOMgI$ crystd. out. $EtOMgI$ was also obtained by the action of $EtOH$ on $MeMgI$ in 2 days of crystn. $EtOMgI \dots OCPH_3$ was prepd. (a) in 65% yield by stirring a mixt. of $EtOMgI \dots OEt_2$ with an excess of Ph_3CO in Et_2O and filtering; (b) in 81% yield by adding Ph_3CO directly to the reaction mixt. obtained by the interaction of $MeMgI$ and $EtOH$. $MeOMgI$, obtained as $MeOMgI \dots OEt_2$ in 75% yield, gave impure $MeOMgI \dots OCPH_3$. The interaction of normal $BuOH$ and $MeMgI$ did not give 2 layers or sepn. of $BuOMgI$, but on addn. of Ph_3CO $BuOMgI \dots OCPH_3$ sepd. in 65% yield. Me_2COMgI on addn. of $tert$ - $BuOH$ to $MeMgI$ in Et_2O , rapidly deposited 87% of $Me_2COMgI \dots OEt_2$ which gave 75% of $Me_2COMgI \dots OCPH_3$. Thus the structure of the component alc. affects the soly. of the mixed alcoholates of Mg formed. $Me_2CC(Me_2)OMgI$, prepd. as the mono-ether salt in theoretical yield from ahyd. II in Et_2O and $MeMgI$ in Et_2O quantitatively gave $Me_2CC(Me_2)OMgI \dots OCPH_3$. CHAS. BLANC

C. A. S. REGISTRY		PROCESSING AND PROPERTY INDEX		10	
<p>Mixed alcoholates of magnesium and their molecular compounds. II. Molecular compounds formed by iodomagnesium alcoholates with aldehydes and diketones. V. M. Tolstopyatov and B. N. Sverdlova. <i>J. Gen. Chem.</i> (U. S. S. R.) 5, 73-83 (1935); cf. <i>C. A.</i> 27, 974.—The reaction of iodomagnesium alcoholates with BzH, cinamaldehyde (I) and benzil (II) in Et_2O was carried out by the method previously described. EtOMgI gave with 1 mol. of BzH a viscous, semi-solid ppt., which was not investigated, and with an excess of BzH a cryst. ppt. contg. to 1 mol. of the alcoholate more than 1 and less than 2 mols. of BzH. EtOMgI with 1 pptid. solid mol. compds.: with little more than 1 mol. I was formed $\text{EtOMgI} \cdot \text{I}$, and with 3 mols. of I a compd. with more than 1 mol. and less than 2 mols. of I. $\text{Et}_2\text{COMgI} \cdot \text{I}$ and with 3 mols. of BzH $\text{Et}_2\text{COMgI} \cdot \text{I}$ and with 3 mols. of BzH $\text{Et}_2\text{COMgI} \cdot \text{I}$, the 2 compds. being obtained in 100% yield. BuOMgI with 1 mol. of I gave 71% $\text{BuOMgI} \cdot \text{I}$.</p>					
<p>and with 3 mols. of 100% $\text{BuOMgI} \cdot \text{I}$. Thus, in distinction from ketones, aldehydes are capable of giving with iodomagnesium alcoholates 2 types of mol. compds.: $\text{ROMgI} \cdot \text{ArCHO}$ and $\text{ROMgI} \cdot 2\text{ArCHO}$. BuOMgI with II in various proportions gave only $\text{BuOMgI} \cdot \text{II}$ in nearly 100% yield. III. Equilibrium systems in the ethereal solutions of mixed magnesium alcoholates (iodomagnesium alcoholates). V. M. Tolstopyatov and A. T. Ruksal'chuk. <i>Ibid.</i> 81-83.—Previously it was shown that MeOMgI and EtOMgI are insol. in Et_2O, and that they react with Ph_2CO with the formation of the mol. compds. of $\text{MeOMgI} \cdot \text{OCPh}_2$ and $\text{EtOMgI} \cdot \text{OCPh}_2$. Similar tests with PrOH, BuOH, cetyl, heptyl and octyl alcs. produced iodomagnesium alcoholates completely sol. in Et_2O, which on the addn. of Ph_2CO gave large yields of the same $\text{MgI} \cdot 3 \text{ Ph}_2\text{CO}$, with the corresponding free alcs. in Et_2O. Thus, contrary to the results of the previous study, all iodomagnesium alcoholates, obtained by the interaction of magnesium alkyls with normal, primary alcs. in Et_2O, beginning with PrOH are sol. in Et_2O and give with Ph_2CO not the mol. compds. of the magnesium alcoholates, but the identical mol. compd. of $\text{MgI} \cdot 3 \text{ Ph}_2\text{CO}$. As was shown before, the same iodomagnesium alcoholates react with II entirely differently, giving 100% yields</p>					
<p>450 554 METALLURGICAL LITERATURE CLASSIFICATION</p>					

of the mol. compds., such as $\text{BuOMgI} \dots \text{PhCOCOPh}$ and $\text{PrOMgI} \dots \text{PhCOCOPh}$. Iodomagnesium octylate formed no ppt. with II. Such a difference in the reaction of iodomagnesium alcoholates with Ph_3CO and with II and aldehydes can only be explained by the existence in the Et_2O solns. of labile equil. systems: an iodomagnesium alcoholate, formed by the action of an alc. on iodomagnesium alkyl in Et_2O , exists in a state of equil. with a symmetrical alcoholate and $\text{MgI} \cdot 2\text{ROMgI} \rightleftharpoons \text{Mg}(\text{OR})_2 + \text{MgI}_2$. The iodomagnesium alcoholates are insol. in Et_2O ; these on COH and pentamethylethanol are insol. giving good yields of the sept. shift the equil. to the right, giving good yields of the mixed alcoholates. In the case of PrOH , BuOH and their homologs with normal structure, the mixed alcoholates as well as $\text{Mg}(\text{OR})_2$ and MgI_2 are sol. in Et_2O , and, therefore, on the addn. of aldehydes, ketones, diketones, etc., there are formed the corresponding mol. compds. with the mixed alcoholates and with MgI_2 . When the 2 mol. compds. are sol. in Et_2O , there is formed no ppt., as was the case in the system of iodomagnesium octylate and II. The existence of such equil. systems of mixed alcoholates in Et_2O was demonstrated when free PrOMgI , prepd. and isolated by the method of Chelintzev (C. A. 7, 3004; 10, 2004; 19, 1244); *Bull. soc. chim.* [3], 35, 741(1924); 37, 170(1928)), completely sol. in Et_2O , gave with Ph_3CO $\text{MgI}_2 \cdot 3 \text{Ph}_3\text{CO}$ and with II $\text{PrOMgI} \dots \text{II}$. C. Blanc

1ST AND 2ND GROUPS																										PROCESSES AND PHYSICAL INDEX																										3RD AND 4TH GROUPS																									
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<p>Mixed alcoholates of magnesium and their molecular compounds. IV. The action of certain ketones on butyloxymagnesium iodide in ether solution. V. M. Tolstopyatov and A. T. Ryskal'chuk. <i>J. Gen. Chem.</i> (U.S.S.R.) 9, 1148-50(1939); cf. <i>C. A.</i> 29, 4748¹.— The reaction of BuOMgI (I) with <i>p</i>-MeC₆H₄COPh (II), styrene (III) and dibenzalacetone (IV) in ether was carried out by the method previously described. Of the 3 ketones only II gave a mol. compd. with MgI. III and IV reacted in the same manner as aldehydes and benzil to give mol. compds. with I. I (0.1 mole) with II (0.15 mole) gave 24% yield of III.MgI. III and IV with I under the same conditions gave III.I, orange-brown (80% yield) and IV.I, yellow-brown (88% yield), resp. The latter, decompd. with dil. H₂SO₄, gave BuOH and 90.5% IV.</p> <p>John Livak</p>																																																																													
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<p>ca</p> <p>Action of pinacolone on <i>tert</i>-butylmagnesium chloride solutions. V. M. Tikhonov and I. V. Voroshilova (Leningrad State Univ.). <i>J. Gen. Chem. (U.S.S.R.)</i> 15, 565-76 (1946) (English summary).—An Et₂O soln. (515 cc.) of 33 g. <i>tert</i>-BuMgCl was treated, with stirring and ice cooling over 3 hrs., with 37.5 g. pinacolone (I) in 110 cc. Et₂O; after stirring for 1 hr. the mixt. was treated with 10% H₂SO₄ to give 15 g. original I and 30% 2,2,3,6,6-pentamethyl-3-heptan-3-one, b_p 90-90.5°, d₄²⁰ 0.8010, d₁₅²⁰ 0.8014, d₄¹⁵ 0.8476, d₁₅¹⁵ 0.848, n_D²⁰ 1.45287; semicarbazone, m. 117-118° (from aq. MeOH). When the expt. was repeated with equimolar amts. of reagents, there was obtained 43% of unreacted I, and 41% of the above ketone which contained small amts. of 2,2,3,6,6-pentamethyl-3-heptan-3-ol-3-one. If I is used in 13.5% excess, 20% I is recovered, with formation of 61% of a mixt. of the above ketone and keto alc., with evolution of gas which was recovered after passage through H₂ soln. in CHCl₃ in the form of iso-BuBr. If the I excess is 120%, the reaction gives 30.5% unreacted I, 19.5% pinacolyl alc., b. 110-119°, and 50% of the above unsatd. ketone. The reaction thus proceeds in 3 directions: enolization, reduction, and condensation; an addn. reaction fails to manifest itself altogether. G. M. Kosolapoff</p>																																																																																																																																																																																																															
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TOLSTOPYATOV, V.M., professor.

"Organizing the transportation of large masses of earth." H.D. Averin.
Reviewed by Tolstopyatov. Mekh.stroi. 10 no.5:31 My '53. (MLRA 6:6)
(Earthwork) (Averin, Nikolai Dmitrievich)

TOLSTOPYATOV, P.I., gornyy inzhener.

Automatic mixing-loading car. Ugol' 31 no.11:35 N '56.

(MLRA 10:2)

1. Shakhta "Krasnyy Profintern."
(Coal-handling machinery)

BC

PROCESSES AND PROPERTIES INDEX

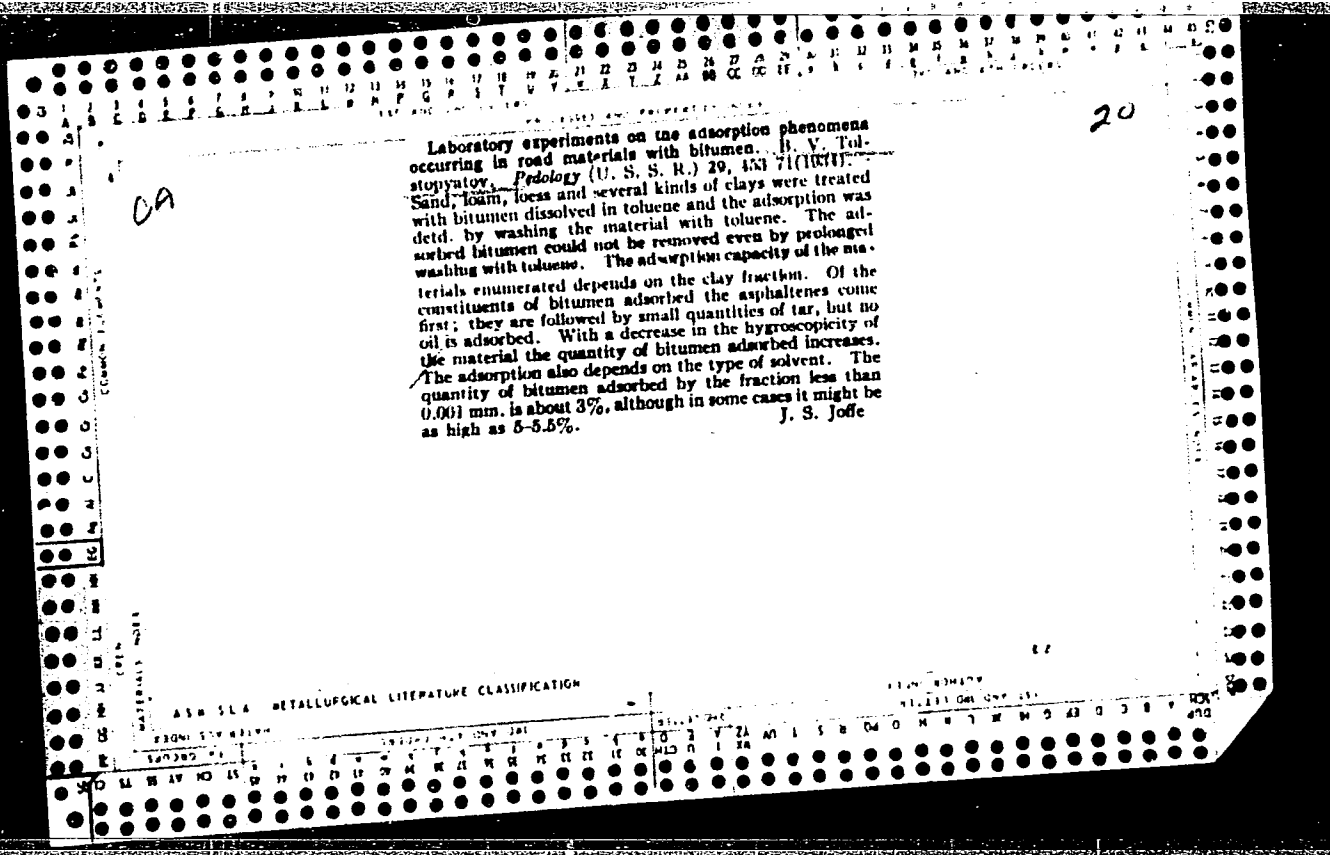
B. III - 1

Requirements in water and fertilizers for the accumulation of nicotine in some types of *Nicotiana glauca* cultivated in the irrigated fields in the lower Volga region. A. Y. Tolstouglaz (Tabacco, Prom., 1935, No. 3, 20-22).—The yield of nicotine was not uniformly influenced by irrigation or by fertilizer treatment. Ch. Aba. (p)

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND COPIES																										3RD AND 4TH COPIES																									
PROCESSING AND PROPERTY INDEX																																																			
<div style="display: flex; justify-content: space-between;"> ca 15 </div> <p>The effect of various amounts of moisture of the soil on the accumulation of nicotine in tobacco leaves. A. Yu. Tolstopyet. <i>Tabachnaya Prom.</i> 1933, No. 5, pp. 307-310. cl. C. A. 30, 14929. — The effect of irrigation on the nicotine content of various types of tobacco grown in Russia is presented in curves. Ninety % satn. of the soil tends to lower the nicotine content of all types of tobacco. Maxima and minima of irrigation are given. A. A. B.</p>																																																			
<div style="display: flex; justify-content: space-between;"> <div> <p>OPEN MATERIALS INDEX</p> <p>ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>STONY 174-1114</p> </div> <div> <p>STONY 174-1114</p> <p>STONY 174-1114</p> <p>STONY 174-1114</p> </div> <div> <p>STONY 174-1114</p> <p>STONY 174-1114</p> <p>STONY 174-1114</p> </div> </div>																																																			

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
COMMON ELEMENTS																										COMMON VARIANTS																									
<p>PROCESSES AND PROPERTIES INDEX</p> <p>The requirements in water and fertilizers for the accumulation of nicotine in some types of <i>Nicotiana rustica</i> cultivated in the irrigated fields in the lower Volga region. A.Va. Tolstoplek. <i>Tabachnyaya Press</i>. 1935, No. 8, 20. The yield of nicotine does not show any regularity when irrigation and fertilizing conditions are changed; the changes affect various types of <i>Nicotiana rustica</i> differently. A. A. Rohtlinek</p>																																																			
<p>ASS. 1.1.1 METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			



15

CA

COMMON ELEMENTS

COMMON VARIABLES INDEX

THE PROBLEM OF ELECTROCHEMICAL TREATMENT OF THE GROUND.
 B. V. Tolstopyatov. *Pedology* (U. S. S. R.) 1940, No
 8, 87-81 (in German; 81-21). -D. c., 110-115 v., was
 passed through quartz, chernozem, moraine loam and
 bentonite. The mass was made up to the consistency of
 cream in a container 12 x 1.5 x 8 cm. The electrodes
 were 4 x 8 cm. of Al and Cu. The current was passed
 until the resistance increased to a high point. The pH,
 sol. Al, Fe, Ca and Mg, as well as exchangeable ions, were
 detd. at various points in the mass. The effects of the
 chem. changes on the structure and other phys. properties
 were noted. J. S. Joffe

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

SECOND DIVISION		THIRD DIVISION		FOURTH DIVISION		FIFTH DIVISION	
GROUP	SUBGROUP	GROUP	SUBGROUP	GROUP	SUBGROUP	GROUP	SUBGROUP
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Ca

Water permeability of bituminous materials. B. V. Tolstopyatov. *Shtroka Drog No. 2, 15 16 (1958)*. Expts. show that water penetrates black binding materials by diffusion and forms microscopic drops. The content of water in thin layers of oil bitumen increases with time. Addn. to the bitumen of salts or fine clay particles stimulates the diffusion of the water. The character of the diffusion phenomenon is practically independent of the chem. nature of the mineral components in the asphalt mixt. B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

REGION SYMBOLS		SECOND MAP ONLY ONE		THIRD MAP ONLY ONE		FOURTH MAP ONLY ONE	
1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH
A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P
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BU	BV	BW	BX	BY	BZ	CA	CB
CC	CD	CE	CF	CG	CH	CI	CJ
CK	CL	CM	CN	CO	CP	CQ	CR
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CA

Soil stabilization and its electrokinetic potential. E. V. Tolstopiatov and N. A. Maksimovich. *Soil Science* (USSR) 1968, No. 6, 1148. The stabilizing effects of CaCl_2 and NaCl upon soils were studied by the method of micro-cathodoresis. A definite relation was seen to exist between the physicochem. capacity to hydrate and the electrostatic condition. The electrokinetic potential is a sensitive and easily determinable indicator. By lowering the electrokinetic potential of the soil the hydration capacity decreases. B. Z. Kamich

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

[illegible]

BC Catalyst poisoning from the viewpoint of the specificity of active centres. VI. Temperature-dependence of the relative duration of stay of water and ethyl alcohol molecules on copper. A. BORK. VII. Kinetics of the dehydration of ethyl alcohol on aluminium oxide. VIII. Orientation of the molecules of the aliphatic alcohols $C_nH_{2n+1}O$ in the dehydration of the alcohols on aluminium oxide. IX. Influence of methyl substituents on the activation energy of the dehydration of the aliphatic alcohols $C_nH_{2n+1}O$ on aluminium oxide. A. BORK and A. A. STOPIATOVA (Acta Physicochim. U.R.S.S., 1937, 7, 745-768; 1938, 8, 577-590, 591-608, 609-616; cf. A., 1937, 1, 573).—VI. The temp.-independence of the relative stay of the H_2O mol. with the active Cu surface at temp. 240-266-5°, has been experimentally demonstrated.

VII. The dehydration of EtOH by Al_2O_3 obeys the equation previously obtained for the dehydrogenation of EtOH (A., 1936, 1, 1472). The ratio α_1/α_2 of the adsorption coeffs. of H_2O to that of EtOH at 350° is 0-65.

1ST AND 2ND ORDERS		PRECEDENCE AND PRIORITY INDEX		3RD AND 4TH ORDERS	
<div style="position: relative; width: 100%; height: 100%;"> C </div>		<div style="position: relative; width: 100%; height: 100%;"> 2 </div>			
<p style="text-align: center;">Catalyst poisoning from the viewpoint of the specificity of active centers. VII. Kinetics of the dehydration of ethyl alcohol on aluminum oxide. A. Kh. Bork and A. A. Tolstopyanov. <i>Acta Physicochim. U. R. S. S. R.</i>, 577-90 (1958).—The dehydration of EtOH by Al_2O_3 obeys the equation previously obtained for the dehydrogenation of EtOH (C. A. 51, 6448). The ratio α_1/α_2 of the adsorption coeffs. of H_2O to that of EtOH at 350° is 0.65. VIII. Orientation of the molecules of the aliphatic alcohols $C_nH_{2n+1}O$ in the dehydration of the alcohols on aluminum oxide. <i>Ibid.</i>, 591-605.—The dehydration of both PrOH and iso-PrOH also follows the same equation. α_1/α_2 for PrOH and iso-PrOH is identical with that for EtOH and thus, presumably, the orientation of the mols. of the different alcs. on the surface of the catalyst is similar. IX. Influence of methyl substituents on the activation energy of the dehydration of the aliphatic alcohols $C_nH_{2n+1}O$ on aluminum oxide. <i>Ibid.</i>, 603-10.—The influence of Me substituents on the activation energy of the dehydration of 6 aliphatic alcohols was experimentally investigated. B. C. P. A.</p>					
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>					
<p>8-2</p>					

TOLSTOPJATOV, V. M.

"Sur les alcooates mixtes de magnesium et leurs composes moleculaires. Memoire IV."
Tolstopjatov, V. M. et Kiskalcuk, A. T. (p. 1148)

SO: Journal of General Chemistry
(Zhurnal Obshchei Khimii) 1939, Volume 9, #12

TOLSTOPIATOVA, A. A.

A. A. Balandin, G. M. Marukyan, A. A. Tolstopyatova

"The Pyrolysis of Ethylbenzene and Styrene." Journal of Applied Chemistry,
19, 1079-92, November 1946, Moscow, Laboratory for Organic Catalysis, of the
University and Institute for Organic Chemistry of the Academy of Sciences.

ABSTRACT AVAILABLE

D-50054

TOLSTOPVATOVA, A. A.

Kinetics of the catalytic formation and decomposition of styrene.
A. A. Balandin and A. A. Tolstopvatova (Acad. Sci. U.S.S.R. and Moscow State Univ.). J. Gen. Chem. (U.S.S.R.) 17, 2182-92 (1947) (in Russian); cf. C.A. 41, 51171.—In order to det. quantitatively the yields of PhCH:CH_2 from PhEt as a function of temp., space velocity, and time of contact, 30-min. runs were made under rigorously controlled conditions with catalyst of medium activity, regenerated at frequent intervals for just the time necessary (15-25 min.) to keep the activity unchanged; this was checked by standard runs, before and after each expt., with 273 ml. liquid PhEt/l. catalyst/hr.,
 $\text{PhEt:CO}_2 =$ at the given temp. With frequent short regenerations, one portion of the catalyst kept a const. activity during 78-80 runs. The contents x of PhCH:CH_2 in the condensate were corrected in each case for the slight difference between the actual activity of the catalyst in the main run and that shown in the 2 control runs, and refer consequently to the same activity. In a special 7-hr. expt. at 650° , it was ascertained that the condensate contains only PhCH:CH_2 and unreacted PhEt. At 550° and 575° , with 20ml., 7 cm. of catalyst, diln. $\text{PhEt:CO}_2 = 1:2$ mols., increase of the space velocity resulted in rapid decrease of x ; e. g., at 550° , 100 and 500 ml./l./hr., $x = 70$ and 30% resp.; at 575° , 60 and 34.5%, resp.; the 2 curves (550 and 575°) intersect at about 150ml./l./hr., $x = 48.5\%$. At 650° , x first increases with increasing space velocity, passes through a very flat max. (x about 46%, at about 380 ml./l./hr., then slowly decreases, to 33% at 2293 ml./l./hr. Correspondingly, plots of x

CULK

sec.; this evidently is due to rapid consumption of the O. through
reaction with the H₂ formed.
N. Thon

TOLSTOPYATOVA, A. A.

Verbatim: - "Model structures and catalysis. The comparative catalytic activity of fluorines of alkali and alkaline earth metals," Vestnik Mosk. un-ta, 1948 No. 12, p. 75-83, - Bibliog: p. 83

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

TOLSTOPYATOVA, A. A.

USSR/Chemistry - Benzene, Ethyl
Chemistry - Dehydrogenation, Speed of

May 48

"Studies of the Speed of Dehydrogenation of Ethylbenzene in Its Binary Mixture With Styrene, Toluene and Benzene," A. A. Balandin, Inst Org Chem Acad Sci USSR, A. A. Tolstopyatova, Lab Org Catalysts, Chem Faculty, Moscow State U, 8 $\frac{1}{4}$ pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 5

Method used was to investigate adsorption on active surface of catalyst by measuring the speed of reaction. It was found that, during the dehydrogenation process, ethylbenzene is absorbed more than toluene and benzene but less than the product, styrene. Models of the reaction complexes were constructed, giving the orientation of the absorbed hydrocarbons relative to the surface of the crystalline catalyst.
Submitted 1 Nov 1946.

PA 8/49T59

CA

2

Pressure dependence of the rate of dehydrogenation of methylcyclohexane. A. A. Tolstopyatova, L. A. Khelits, and V. V. Patrikeev (Moscow State Univ., Vestnik Mosk. Univ. 6, No. 2, Ser. Fiz.-Mat. i Estestv. Nauk No. 1, 47-60 (1951)).—On a 28% Pt catalyst, the rate of evolution of H_2 from methylcyclohexane passed at 0.48 ml./min. does not vary with the pressure between 27 mm. Hg and 1 atm. With 0.05 g. catalyst, the rates were, at 280° and 304°, resp., 9.5 and 13.0 cc. (S.T.P.) H_2 /3 min. This independence of the pressure indicates probably complete surface coverage. The activation energy, between 280 and 275°, was detd. (on 0.6 g. catalyst) to be 18.2 kcal./mole.
N. Thon

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001756120010-8

1-25-80 yH to VH, R.H.

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001756120010-8"

Tolstopoyanova, A.A.

USSR!

Components of the activation energy and the problem of choosing catalysts. A. A. Balandin and A. A. Tolstopoyanova (M. V. Lomonosov State Univ., Moscow). Doklady Akad. Nauk S.S.S.R. 24, 49-52 (1954); cf. C.A. 41, 1920b.

--The activation energy for a catalytic reaction can be sep'd. into component parts consisting of the binding energy of the reacting atoms with the catalyst. These values can be det'd. by the kinetic method described earlier by B. The applicability of this method is proved by the following reactions: (a) dehydrogenation of hydrocarbons, (b) dehydrogenation of alcs., and (c) dehydration of alcs. The catalyst was Cr_2O_3 .

J. Rovtar Leach

"APPROVED FOR RELEASE: 07/16/2001

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~~FCI STOP VATOVA, A. A.~~

APPROVED FOR RELEASE: 07/16/2001

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"APPROVED FOR RELEASE: 07/16/2001

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APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001756120010-8"

BALANDIN, A.A.; TOLSTOPYATOVA, A.A.

Kinetic determination of bond energies as an approach to the theory of the selection of catalysts. Part 2. Comparison of results with chromia [with English summary in insert]. Zhur.fiz.khim. 30 no.7:1636-1646 J1 '56. (MLRA 9:11)

1. Akademiya nauk SSSR, Institut organicheskoy khimii imeni N.D. Zelinskogo, Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova, Moskva.

(Chromium oxides) (Catalysts)

TOLSTOPYATOVA, A. A.

5(2)

Abstrakty i knizhnyye informatsionnyye resheniya
 Khimicheskiye elementy, polucheniye, analiza, primeneniye (Rare Earth
 Elements: Extraction, Analysis and Application) Moscow, Izdatel'stvo AN SSSR,
 1978. 311 p. 2,400 copies printed.
 Reprint. Ed.: D. I. Ryabchikov, Professor; Editorial Board: I. P. Alimarin,
 V. I. Kuznetsov, Doctor of Chemical Sciences, N. V. Kuznetsov, Doctor
 of Chemical Sciences, and Yu. S. Zhurav, Candidate of Chemical Sciences,
 Moscow.
 PURPOSE: This book is intended for scientists, chemists, teachers and students
 of higher educational institutions, chemical and industrial engineering and
 other persons concerned with the extraction, preparation, major study of
 rare earth elements.
 CONTENTS: This collection contains reports presented at the June 1976 Conference
 on Rare Earth Elements at the Institute of Geochemistry and Analytical Chem-
 istry (Inst. V. I. Vernadsky) of the Academy of Sciences USSR. The articles
 treat chemical methods of separating rare earth mixtures, methods of processing
 rare earth ores, ion exchange chromatography, chemical analysis, and some in-
 dustrial applications of rare earths. Aside from contributing authors, the
 editors mention the following Soviet scientists, who are studying rare earth
 elements, rare earth deposits, extraction methods, and the preparation of rare
 earth compounds: Zhurav and especially, N. A. Gilyov, who first obtained the
 molecular compounds of these elements in the pure state, separated many complex
 references are given at the end of each article.

NAME OF CONTRIBUTOR:
 Tolstopyatova, A. A., and A. A. Blazhina (Institut Khimicheskoy Khimii AN SSSR,
 Institute of Organic Chemistry in USSR) Rare Earth Elements as Catalysts in
 Organic Chemistry. Oxides of Cerium, Lanthanum, and Neodymium
 Lanthanum, V.I., N.A. Kostantinov, and N.A. Zhuravskaya (Fizicheskii
 Institut Inst. V. I. Vernadsky AN SSSR, Physical Institute of Inst. V. I.
 of Moscow) Application of Rare Earth Elements in the Chemistry
 of Lanthanides
 Tolstopyatova, A. A., and V. A. Blazhina (TUM-All-Union Scientific Research
 Institute of Aviation Medicine, The Use of Rare Earths For Alloying
 Magnesium Cast Alloys
 AVAILABLE: Library of Congress (00172, 82/36)

307
 311
 323

22/11
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2nd 11/21

AUTHORS: Tolstopyatova, A. A., Balandin, A. A., SOV/62-58-10-4/25
~~Karpeyskaya, Ye. I.~~

TITLE: Kinetic Determination of the Binding Energies With the Chromium Oxide Catalyst. (Kineticheskoye opredeleniye energiy svyazi s katalizatorom okis' khroma)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 10, pp 1184-1191 (USSR)

ABSTRACT: In the present paper the authors investigated the dehydrogenation and dehydration kinetics of isopropyl alcohol as well as the dehydrogenation of cyclohexane on chromium oxide (obtained by annealing ammonium bichromate). The authors found the relative adsorption coefficient of acetone and hydrogen. They also determined the activation energy of the reactions of the dehydrogenation and dehydration of isopropyl alcohol, as well as of the dehydrogenation of cyclohexane. The binding energies of the atoms reacting in the molecule with the catalyst were determined. The authors also compared the catalytic properties of chromium oxide produced by other methods with those described already. There are 6 figures,

Card 1/2

Kinetic Determination of the Binding Energies With the Chromium Oxide Catalyst SOV/62-58-10-4/25

9 tables, and 12 references, 11 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova i Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR. (Moscow State University imeni M. V. Lomonosov and Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: April 2, 1957

Card 2/2

AUTHORS: Tolstop'yatova, A. A., Balandin, A. A., SOV/76-32-B-17/37

TITLE: The Catalytic Properties of Cerium Dioxide in the Dehydration and Dehydrogenation of Alcohols and in the Dehydrogenation of Cyclohexane (Kataliticheskiye svoystva dvuokisi tseriya v otnoshenii reaktsiy legidrogenizatsii i degidratatsii spirtov i degidrogenizatsii tsiklogeksana)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 8, pp. 1831-1841 (USSR)

ABSTRACT: In the introduction publications in the field mentioned in the title are mentioned, among them are those by Cremer (Kremer) (Ref 8). In the present paper methanol, ethanol, n-propanol and isopropanol, and cyclohexane were investigated. The authors described the apparatus used, the initial substances as well as the preparation of the catalyst, and the experimental technique. The dehydrogenation of cyclohexane was carried out at 496-548°C, that of methanol at 299-358°C, that of ethanol at 311-363°C, that of n-propanol at 315-360°C, and the simultaneous dehydrogenation and dehydration of isopropanol was carried out at 307-369°C. Individual data (as, for

Card 1/3

The Catalytic Properties of Cerium Dioxide in the SOV/76-32-8-17/37
Dehydration and Dehydrogenation of Alcohols and in the Dehydrogenation of
Cyclohexane

example, the activation energies) and the results obtained are given separately for each single investigation, as well as tables containing the experimental results. Determinations of the binding energy of C, H and O with CeO_2 were carried out, with data by Cottrell (Kotrel') (Ref 16) being used. A comparison of the values obtained of the activation energy (except for methanol) shows that it is smaller in the case of secondary alcohols than with primary alcohols, and that it increases with a lengthening of the chain. The assumption by Palmer and Constable (Palmer and Konstebl) (Ref 17) argued upon by A.Kh. Bork (Ref 18) was disproved by the observations made by O.K. Bogdanova, A.A. Balandin and A.P. Shcheglova (Ref 19) as well as by those mentioned above. The adsorption potential of the catalyst decreases according to the increase of the activation energy; this causes the reaction to take place with greater difficulty. Some explanations on the binding energies are given. L.S. Revenko, Laboratory Worker, participated in the experiments.

Card 2/3

The Catalytic Properties of Cerium Dioxide in the SOV/76-32-8-17/37
Dehydration and Dehydrogenation of Alcohols and in the Dehydrogenation of
Cyclohexane

There are 5 figures, 7 tables, and 23 references, 11 of
which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut organicheskoy khimii im. N.D.
Belinskogo, Moskva (AS USSR, Institute of Organic Chemistry
imeni N.D. Belinskiy, Moscow)

SUBMITTED: March 20, 1967

Card 3/3

AUTHORS: Balandin, A. A., Member, Academy of Sciences, USSR, Karpeyskaya, Ye. I., Tolstoplyatova, A. A. SOV/20-122-2-17/42

TITLE: Investigation of the Catalytic Dehydrogenation of Hydrocarbons and Alcohols Over Metallic Rhenium (Issledovaniye kataliticheskoy degidrogenizatsii uglevodorodov i spirtov nad metallicheskim reniyem)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 2, pp 227-230 (USSR)

ABSTRACT: In recent years more attention has been given to the investigation and the use of rhenium above all to the determination of its catalytic properties. The authors extended their investigations beyond the subject mentioned in the title (a review Ref 1). According to the multiplet-theory of catalysis a lattice of the catalyst of the A1 or A3-type and an atomic radius r within a range of from 1,22 to 1,39 Å is necessary for the dehydrogenation of the sextet-type (Ref 2). Later it was known that metallic rhenium has an A3-lattice and an atomic radius of 1,368 Å. Thus, it corresponds to the above requirements and must theoretically be able

Card 1/3

Investigation of the Catalytic Dehydrogenation of Hydro- SOV/26-122-2-17/42
carbons and Alcohols Over Metallic Rhenium

to dehydrogenate catalytically 6-membered hydrocarbons. The structure and the atomic radius of rhenium satisfy the principle of the maintenance of the valent angle of the multiplet-theory (Refs 3,4); for this reason rhenium may also serve as catalyst for the dehydrogenation of hydrocarbons and alcohols according to the doublet-mechanism. The mentioned catalytic properties were experimentally only insufficiently investigated (Refs 5,7,8). Above all, the experimental details as well as the method of production of the catalyst are unknown. For this reason the authors made the present investigations. It was proved by the authors that rhenium applied on coal yields an active catalyst of dehydrogenation of cyclohexane and its homologs, cumene, as well as of the dehydrocyclization of n-heptane. On the rhenium catalysts produced by the authors also alcohol-dehydrogenation takes place between 120 and 300° as well as the conversion of butane-diol-1,4 into γ -butyrolactone..There are 4 tables and 13 references, 9 of which are Soviet.

Card 2/3

Investigation of the Catalytic Dehydrogenation of Hydro- SOV/20-122-2-17/42
carbons and Alcohols Over Metallic Rhenium

ASSOCIATION: Institut organicheskoy khimii im. N.D.Zelinskogo Akademii
nauk SSSR (Institute of Organic Chemistry imeni N.D.
Zelinskiy, AS USSR)

SUBMITTED: July 16, 1958

Card 5/3

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511141 ACQUACCIUTTI, S. ILLUSTRAZIONE ANALITICA. 'NOTE SULLA VITA DI

Sediment types elements; pebbles, prismenite (New Earth Elements); Production, Analysis, and Use Moscow, Izd-vo AN SSSR, 1979. 311 p.
5,000 copies printed.

Sup. M. I. D. I. Repokhin, Professor, Eds. of Publishing House: D. M. Trifunov and T. D. Levit, Tech. Eds. I. M. Muravich, Editorial Board: I. P. Alimova, Corresponding Member, USSR Academy of Sciences, I. E. Zaslavsky, Doctor of Chemical Sciences, E. V. Kutyayev, Candidate of Chemical Sciences, V. I. Kuznetsov, Doctor of Chemical Sciences, N. M. Kopylov, Candidate of Chemical Sciences, and Yu. E. Shlyavtsov, Candidate of Chemical Sciences.

PURPOSE: This book is intended for chemists in general and for technicians and analytical chemists in particular.

CONTENTS: This collection of articles consists of reports presented at the Ninth Earth Elements Symposium held in June 1956 at the Institute of Geochemistry and Analytical Chemistry (Imst V. I. Vernadsky). The book may be divided into three sections: the characteristics, uses and production of main earth elements (Part I); the methods of analyzing REE; and the application of individual rare earth elements and REE structures in the glass and metallurgical industries, and their use as catalysts. Considerable space is devoted to the application of ion-exchange chromatography in the production of pure forms of all rare earth elements. The modifications of this method with other methods in separating REE on an industrial scale are discussed by D. I. Yan'kovich, Yu. S. Shapovalov, and M. M. Mayevskii. "General methods of separating REE compounds are discussed by I. M. Zaslavskiy (who is said to be the first in the USSR to develop methods of processing REE). V. P. Koltunov, Z. P. Andreyev, A. V. Kikolovskiy, and G. P. Alexandrov. Quantitative x-ray spectral analysis of REE is described by E. N. Zhuravskiy, and chemical methods of analysis by I. P. Alimskii and P. I. Pavlovskiy. The determination of REE impurities in pure products and atomic materials are discussed at length in three articles by A. S. Serebrii, and his associates. All articles are accompanied by photographs, diagrams, tables, and tabular data.

Zaydel', A. N., and A. A. Lipavskiy. Spectrophotometrical Determination of Cd, Cu, and Sn in Atomic Materials. Communication ... Analysis of Atomic Materials and Elements on Cd

1. *For the Method of Einstein Spectral Analysis*

Peablove, V. M., M. I. Gerasova, I. P. Yezhov, and N. A. Kozlov.
Spectrophotometric Investigation of Complexes of Rare Earth
Elements

Improvements, I. B. Applying the Nitration of Acetone to Analysis of Binary Mixtures of Methyl Alcohols

Podarev, K. T., and V. A. Dubrovskiy. Scientific Problems in the Use of New Earth Elements in the Glass Industry

Tracy, E. I., Yu. M. Tyurin, and Yu. A. Brodskiy. Process of the Use of Polirite in Polishing Glass on a Conveyor at the Plant in. P. E. Des-
zhinsky

Physical-Mechanical Properties of Rare Earth Elements and Their Alloys 399

Lavrin, V. I., M. A. Ivanetskova, and I. A. Tropeykinova. The Use of Rare Earth Elements in the Chemistry of Lanthanophores. In *Organic Chemistry. Cerium, Lanthanum and Actinium Compounds*. 1967. 316

titium, H. M., and V. A. Blokhina. Use of Rare Earth Metals in
Alloying Magnesium Cast Alloys

AVAILABILITY: Library of Congress

AVAILABILITY: Library of Congress

5 (3)

007/55-59-3-20/32

AUTHOR:

Tolstopyatova, A. A.

TITLE:

The Work Performed by A. A. Balandin in the Field of
Heterogeneous Catalysis

PERIODICAL:

Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki,
astronomii, fiziki, khimii, 1959, Nr 3, pp 159 - 169 (USSR)

ABSTRACT:

This article was published on the occasion of the 60th birth-
day of A. A. Balandin (December 20, 1958). It gives a survey
of the more than 500 papers by this scientist, and mentions
the following works which are based on the multiplet theory
of catalysis developed by him: Dehydrogenation of six-mem-
bered cyclic hydrocarbons on metallic catalysts. Hydro-
genation of triptycene. Determination of the optimum distance
for a given reaction between the active centers of the cata-
lyst. Setting up of a kinetic equation for monomolecular
reactions and of an equation for the dehydrogenation of various
organic compounds. Determination of the thermodynamic proper-
ties of the activated and adsorption complex. The kinetics of
the dehydrogenation of alcohols of various structure on

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SOV/55-59-3-20/32

The Work Performed by A. A. Balandin in the Field of Heterogeneous Catalysis

metallic and oxide catalysts. Proof of the fact that ethylene is produced in two ways from ethanol on aluminum oxide. Dehydrogenation of butene and butylene, of alkyl-aromatic compounds (divinylbenzene and others), heterocyclic compounds, and alkyl-aromatic silanes. Setting up of a theory of the hydrogenation of unsaturated compounds, which was of great importance for the industrial production of high-octane aircraft fuel. Kinetics of the hydration of organic peroxides. Hydration of polysaccharides. Investigation of the effect of substituents on the rate of hydration. Thermochemical determination of the binding energy of C, H, O, and N with the elements of the most important catalysts. Investigation of iron- and iron-oxide catalysts. Application of the multiplet theory to ferment reactions. Utilization of the catalytic properties of ores with a low content of heavy- and non-ferrous metals: The process of ore-contact gasification of petroleum residues with steam. Formation of carbon on catalysts. Thermal ionization of hydrogen and hydrocarbons on metallic catalysts. A. A. Balandin also dealt with other fields such as adsorption, reactions in electric discharges, struc-

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SOV/55-59-3-20/32

The Work Performed by A. A. Balandin in the Field of Heterogeneous Catalysis

tural algebra, etc. He is the head of a large team of scientific workers: Thus, he is head of the laboratoriya kinetiki organicheskikh reaktsiy (Laboratory for the Kinetics of Organic Reactions) and of the laboratoriya imeni N. D. Zelinskogo (Laboratory imeni N. D. Zelinskiy) at the Institut organicheskoy khimii AN SSSR (Institute of Organic Chemistry of the AS USSR). In 1946 he was appointed Academician of the AS USSR. In 1930 he began his lectures on organic catalysis at the khimicheskii fakul'tet MGU (Department of Chemistry of Moscow State University). In 1940 a special chair for organic catalysis was founded, which is leaded by A. A. Balandin. He is further Chairman of the Council for "Nauchnyye osnovy podbora katalizatorov" (Scientific Bases for the Selection of Catalysts) at the Otdeleniye khimicheskikh nauk AN SSSR (Department of Chemical Sciences of the AS USSR) which coordinates all work concerning catalysis. A. A. Balandin was awarded the Order of Lenin, two Orders of the Red Banner of Work, and several medals. He obtained the Stalin Prize, and for work on synthetic rubber etc. he

Card 3/4

SOV/55-59-3-20/32

The Work Performed by A. A. Balandin in the Field of Heterogeneous Catalysis

was awarded the Mendeleev and Lebedev Prizes. The following persons are mentioned as his collaborators: A. M. Rubinshteyn, Ya. T. Eydus, D. V. Sokol'skiy, Ye. I. Karpeyskaya, I. I. Brusov, O. K. Bogdanova, A. P. Shcheglova, Ye. I. Klabunovskiy, S. L. Kiperman, P. Teteni, G. V. Isagulyants, V. E. Vasserberg, M. P. Maksimova, G. M. Marukyan, A. A. Ponomarev, N. V. Nikiforova, L. Kh. Freydlin, N. A. Vasyunina, M. L. Khidkel', M. P. Kozina, A. I. Kukina, T. A. Slovokhotova, V. V. Patrikeyev, S. Ye. Rayk, N. Z. Kotelkova, A. P. Rudenko, P. T. Ivanov and the author. There are 82 references, 75 of which are Soviet.

Card 4/4

5 (4)

AUTHORS:

Balandin, A. A., Karpeyskaya, Ye. I.,
Tolstopyatova, A. A.

SOV/62-59-8-4/42

TITLE:

On the Catalytic Properties of Rhenium. Communication 1.
Rhenium as a Dehydrogenation Catalyst

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1959, Nr 8, pp 1365-1371 (USSR)

ABSTRACT:

On the basis of the structural conditions of the multiplet theory it was to be expected that rhenium had a dehydrogenating effect upon hydro-aromatic hydrocarbons. Platonov (Ref 13) reported on such a dehydrogenation upon rhenium, but did not describe the reaction conditions nor the preparation of the catalysts. In the present paper the data cited by Platonov are checked and investigations of the capability of dehydrogenation of Re on hydrocarbons by means of different catalysts (powdery catalysts and carrier catalysts) are carried out. The catalytic activity of the catalysts with regard to cyclohexane was investigated. It was shown that it is possible to dehydrogenate cumene as well as to dehydrocyclize n-heptane on Re. In the experimental part the preparation of 10 catalysts is described. (Catalysts 1 and 2 according to Platonov's nitric acid method (Ref 4)).

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On the Catalytic Properties of Rhenium.

SOV/62-59-8-4/42

Communication 1. Rhenium as a Dehydrogenation Catalyst

Catalysts 1-3 were prepared from ammonium perrhenate, catalysts 4, 5 were Re on aluminum (Re-contents 25 and 60.8%), 6: Re on asbestos, 7: Re on silica gel, 8, 9: Re on activated coal, 10: Re on activated boneblack (Re percentages are given). The initial materials were isopropyl alcohol, cyclohexane, n-heptane, and cumene. The catalytic reaction rate was determined from the amount of hydrogen separated out. The gas analysis was done on a VTI unit. The results of the individual reactions on the various catalysts are compiled in tables 1-8 and figures 1-4. It was found that for the dehydrogenation of isopropyl alcohol on catalysts 1 and 2 an activation energy of 10.4 and 12.0 kcal/mol, respectively, is necessary, as was also shown by Platonov (Ref 3). The dehydrogenation of cyclohexane and -hexene did not succeed upon catalysts 1, 2, 3, 6, 7, while the yield was low with 4 and 5. Cyclohexane is transformed into cyclohexene, which is explained by the doublet mechanism of these two catalysts with regard to the dehydrogenation of the two substances. The carrier catalysts Re on activated coal proved to be the most active ones. It was concluded from these results that the type of carrier plays an important part in catalytic

Card 2/3

On the Catalytic Properties of Rhenium.

SOV/62-59-8-4/42

Communication 1. Rhenium as a Dehydrogenation Catalyst

reactions. The characteristic of this part is the ratio of the difference in the atomic distances of metal atoms and carrier atoms. N-heptane on catalyst 9 resulted in 14.1% toluene, while cumene on catalyst 9 produced α -methylstyrene and, partly, its polymerizate. There are 6 figures, 8 tables, and 15 references, 11 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, of the Academy of Sciences, USSR)

SUBMITTED: November 5, 1957

Card 3/3

5(2)

SOV/62-59-9-4/40

AUTHORS: Balandin, A. A., Karpeyskaya, Ye. I., Tolstopyatova, A. A.

TITLE: On the Catalytic Properties of Rhenium. Report 2. Dehydrogenation of Cyclohexane

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 9, pp 1529-1535 (USSR)

ABSTRACT: Cyclohexane is dehydrogenized on activated carbon by rhenium (Ref 1). In the present paper the authors subjected the mode of operation of the catalyst in the dehydrogenation process to closer investigations. They determined the effect of the rhenium content in the catalyst on the activating rate and energy of the above-mentioned reaction. The reaction process in the presence of benzene and hydrogen was also investigated; therefrom it was possible to determine the relative adsorption coefficient of the reaction products. The following catalysts were used: catalyst Nr 9 of reference 1 and catalysts Nr 11 (Re 4.86%), Nr 12 (Re 9.45%), Nr 13 (Re 16.6%), Nr 14 (Re 38.4%), Nr 15 (Re 42.5%). The determination methods were the same as in previous investigations (Refs 1,2). Hydrogen was added with a gasometer (system Patrikeyev, reference 4). The influence of the

Card 1/3

SOV/62-59-9-4/40

On the Catalytic Properties of Rhenium. Report 2. Dehydrogenation of Cyclohexane

rhenium content in the catalysts appeared in the following way: (analysis results of the reaction products in tables 1, 2 and on figures 1, 2). Pure, activated carbon had the least activity and the reaction proceeded at very high temperatures only. The reaction process was observed to proceed according to different mechanisms on pure carbon and on Re-catalysts. The value

$\frac{\epsilon}{\lg k_0}$ was a maximum for catalyst Nr 9 (best catalyst) (Re content 29.6%).

The adsorption coefficient "z" was determined for benzene and hydrogen on catalyst Nr 9 (Tables 4,6); z was determined according to formula $z = \frac{m}{100/P-1}$.

The adsorption coefficient is temperature independent. The dehydrogenation reaction on the Re-catalyst is a reaction of the order of zero. The activation energy was from 12.8 (Nr 9) to 20.3 kcal. There are 2 figures, 6 tables, and 6 references, 4 of which are Soviet.

Card 2/3

SOV/62-59-9-4/40

On the Catalytic Properties of Rhenium. Report 2. Dehydrogenation of Cyclohexane

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: December 30, 1957

Card 3/3

5(4)

AUTHOR:

Tolstopyatova, A. A.

SOV/76-33-2-44/45

TITLE:

Chronicle (Khronika). Aleksey Aleksandrovich Balandin
(Aleksey Aleksandrovich Balandin). (On His 60th Birthday)
(K 60-letiyu so dnya rozhdeniya)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 2, pp 504-506
(USSR)

ABSTRACT:

A. A. Balandin reached the age of 60 on December 20, 1958. During the course of his 35 years in scientific work he established also the multiplet theory of catalysis as a pupil of N. D. Zelinskiy, and he is one of the pioneers in investigations of the kinetics of organic catalytic reactions. Balandin developed the theory of the quasi-homogeneous surface with which the contradictions in the kinetic equations which were derived from the equations of Langmuir (Lengmyur) and which are related to the homogeneity and heterogeneity of the catalyst surface can be avoided. He founded the theory of the hydrogenation of unsaturated bonds. A. A. Balandin and his collaborators published over 500 scientific papers (which are mainly concerned with the many-sided possibilities for

Card 1/2

Chronicle. Aleksey Aleksandrovich Balandin.
(On His 60th Birthday)

SOV/76-33-2-44/45

applying the multiplet theory) and obtained 12 patents on discoveries. Balandin is Director of the laboratoriya kinetiki kataliticheskikh organicheskikh reaktsiy (Laboratory for the Kinetics of Catalytic Organic Reactions) and of the laboratoriya im. N. D. Zelinskogo v IOKh AN SSSR (Laboratory imeni Zelinskiy in the IOKh AS USSR) and directs also the kafedra organicheskogo kataliza v MGU (Chair for Organic Catalysis at the MGU), which was founded by him, as well as the special laboratory and course which belong to it. At this time the following belong to the scientific school of A. A. Balandin: Ye. A. Agronomov, O. K. Bogdanova, A. Kh. Bork, I. I. Brusov, V. E. Vasserberg, N. A. Vasyunina, P. G. Ivanov, G. V. Isagulyants, Ye. I. Klabunovskiy, S. L. Kiperman, A. I. Kukina, G. M. Marukyan, V. V. Patrikeyev, S. Ye. Rayk, A. P. Rudenko, T. A. Slovokhotova, N. P. Sokolova, A. A. Tolstopyatova, L. Kh. Freydlin, A. P. Shcheglova, and others. A. A. Balandin is Director of the Sovet po probleme "Nauchnyye osnovy podbora katalizatorov" pri otdelenii khimicheskikh nauk AN SSSR (Board for Problems "of the Scientific Basis for the Choice of Catalysts" in the Department of Chemical Sciences AS USSR). This board

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Chronicle. Aleksey Aleksandrovich Balandin.
(On His 60th Birthday)

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coordinates all papers concerning catalysis in the USSR.
Balandin was awarded the Lenin Prize, the Stalin Prize, two
orders of the Red Banner of Work and was the recipient of the
Mendeleyev and Lebedev Prizes for his investigations in the
field of synthetic rubber and for his other papers. There is
1 figure.

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5(4)

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SOV/76-33-11-15/47

AUTHORS:

Balandin, A. A., Karpeyskaya, Ye. I., Tolstopyatova, A. A.

TITLE:

Principle of the Structural Congruence and the Catalytic Properties of Rhenium

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 11, pp 2471-2475 (USSR)

ABSTRACT:

Starting from the multiplet theory one may assume that rhenium may act as a dehydrogenation catalyst (as Pt, Pd, Ir, Rh, Co, and Ni with the structural lattice A 1 and Os, Ru, Co, and Ni with the lattice A 3), as it has an A 3 lattice and an atomic radius of 1.37 Å. M. S. Platonov (Ref 2) pointed out at the Conference on Catalysis of 1940 that rhenium cyclohexane can dehydrogenate at 300-350°, but he did not present any experimental data. In the present case an active rhenium catalyst was obtained by preparing from Re_2O_7 and dioxane a $\text{Re}_2\text{O}_7 \cdot x\text{C}_4\text{H}_{10}\text{O}_2$ precipitate, which was dissolved in methanol. In one case the solution was deposited on active carbon (birch charcoal) and heated for several hours to 500° in a hydrogen current, in the other case the methanol solution was deposited on asbestos and reduced. Three series of experiments on the dehydrogenation of cyclic

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Principle of the Structural Congruence and the Catalytic Properties of Rhenium

hydrocarbons were carried out in a continuously working apparatus, and the gas formed was analyzed in the apparatus VTI. The dehydrogenation of the cyclohexane occurred at 250-340°. It was thus shown that the Re/C catalyst (Table 1) is more effective than the Re/asbestos catalyst (Table 2), but the activation energy remains the same (7.8 kcal/mol) and the composition of the gas is almost independent of the temperature. The structure important for the catalyst depends not only on the catalyst carrier, but also on the method of preparation, since one catalyst was inactive. The latter had been produced by applying rhenium acid to asbestos. The dehydrogenation of methyl cyclohexane occurred on the Re/C catalyst at 270-320°. It showed (Table 3) that the methane content of the gas is temperature-dependent. During the dehydrogenation of ethyl cyclohexane on the Re/C catalyst at 286-383° (Table 4), it was also found that the gas composition is temperature-dependent. There are 1 figure, 4 tables, and 5 Soviet references.

ASSOCIATION: Akademiya nauk SSSR, Institut organicheskoy khimii im. N. D. Zelinskogo (Academy of Sciences, USSR, Institute of Organic Chemistry imeni N. D. Zelinskiy)

Card 2/2

TOLSTOPYATOVA, A.A.; PYN BI-SYAN [P'ang Pi-hsiang]; BALANDIN, A.A.

Catalytic activity of ytterbium oxide with respect to the reactions of dehydrogenation and dehydration of alcohols and dehydrogenation of tetralin. Izv.AN SSSR.Ser.khim. no.12:2100-2106 '65. (MIRA 18:12)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.
Submitted July 17, 1963.

TOLSTOPYATOVA, A.A.; STSHITZHEVSKIY, V.; BALANDIN, A.A.

Effect of the structure of alcohols on the activation energy
of their dehydration on tungsten oxide. Vest. Mosk. un. Ser.
2: Khim. 18 no.3:52-56 My-Je '63. (MIRA 16:6)

1. Kafedra organicheskogo kataliza Moskovskogo universiteta.
(Alcohols) (Dehydration(Chemistry))
(Tungsten oxides)

L 14059-53 EWP(j)/EPP(c)/EWP(q)/EAT(m)/ S/062/63/000/004/003/022
 BBS AFFTC P-4/Pr-4 RM/WW/JD
 AUTHOR: Tolstopyatova, A.A., Dudzik, Z., and Balandin, A.A.
 TITLE: Catalytic properties of alpha-U₃O₈ in dehydrogenation and dehydration reactions and the bond energies of carbon, hydrogen, and oxygen with the catalyst 16 27 27
 PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 4, 1963, 616-619
 TEXT: 7 The kinetics of the dehydrogenation and dehydration of isopropyl alcohol and the dehydrogenation of tetralin was studied, using alpha-U₃O₈ as catalyst. The latter is a mixed acting catalyst, initiating the dehydrogenation and dehydration of isopropyl alcohol and the dehydrogenation of tetralin. The catalytic properties of alpha-U₃O₈ in these reactions are analogous to the catalytic properties of ThO₂. The bonding energy of C, H, and O with alpha-U₃O₈ changes in the order Q_O-catalyst > Q_H-catalyst > >
 Q_C-catalyst . There are 3 figures and 3 tables.
 ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonsova (Moscow State University imeni M.V. Lomonsov)
 SUBMITTED: June 7, 1962

1/1

TOLSTOPYATOVA, A.A.; BALANDIN, A.A.; PYN BI-SYAN [P'eng Pi-hsiang]

Catalytic properties of thulium oxide in the reactions of
dehydrogenation and dehydration of alcohols and dehydro-
genation of tetralin. Izv. AN SSSR. Ser. khim. no.11:1953-
1960 '65. (MIRA 18:11)

1. Moskovskiy gosudarstvennyy universitet.

BALANDIN, A.A.; DUDZIK, Z.; TOLSTOPYATOVA, A.A.

Determination of the bond energies of carbon, hydrogen, and oxygen atoms of organic molecules with copper by using the kinetic method. Izv. AN SSSR. Otd.khim.nauk no.6:996-999 Je '63. (MIRA 16:7)

1. Moskovskiy gosudarstvennyy universitet imeni Lomondsova.
(Chemical bonds) (Alcohols) (Copper catalysts)

TOLSTOPYATOVA, A.A.; YUY TSI-TSIUAN¹ [Yu Ch'i-l-sh'uan]; GORSHKOVA, I.S.

Catalytic properties of praseodymium oxide in the reaction of dehydrogenation and dehydration of alcohols and dehydrogenation of tetralin. Kin. i kat. 6 no.3:466-470 My-Je '65.

(MIRA 18:10)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

TOLSTOPYATOVA, A.A.; BALANDIN, A.A.; YUY TSI-TSYUAN' [Yu Ch'i-ch'uan]

Kinetic parameters of dehydrogenation and dehydration of isopropyl alcohol and dehydrogenation of tetralin on praseodymium oxide.
Kin. i kat. 6 no.4:682-687 JI-Ag '65. (MIRA 18:9)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.

TOLSTOPYATOVA, A.A.; BALANDIN, A.A.; YUY TSI-TSYUAN' [Yü Ch'i-ch'üan]

Catalytic properties of erbium oxide with respect to the reaction of dehydrogenation and dehydration of alcohols and dehydrogenation of tetralin. Kin. i kat. 5 no.5:877-880 S-O '64. (MIRA 17:12)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

BALANDIN, A.A., akademik; KARPEYSKAYA, Ye.I.; FERAPONTOV, V.A.; TOLSTOPYATOVA, A.A.

Catalytic synthesis of piperazine. Dokl. AN SSSR 165 no.1:99-102
N 165. (MIRA 18:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

TOLSTOPYATOVA, A.A.; TARLYKOVA, K.D.; PYN BI-SYAN [P'ing Bi-shiang]

Catalytic properties of gadolinium oxide in dehydrogenation and
dehydration reactions of alcohols and dehydrogenation of tetralin.
Izv. AN SSSR.Ser.khim. no.10:1751-1758 '65.

(MIRA 18:10)

1. Moskovskiy gosudarstvennyy universitet.

TOLSTOPYATOVA, A.A.; BALANDIN, A.A.; YU TSI-TSYUAN' [Yü Ch'i-ch'üan]

Kinetic parameters for dehydrogenation and dehydration of ethyl, isopropyl alcohols and dehydrogenation of tetralin on erbium oxide. Kin. i kat. 6 no.1:108-114 Ja-F '65.

(MIRA 18:6)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

TOISTOYALOVA, A.A.; HARMON, J.A.; TOLSTOY, A.A.

Regularities in the change of bond energies and activation energy on oxide catalysts. *Ther. fiz. khim.* 30 no.6:1622-1627 Je '64. (MIRA 18:3)

1. Institut organicheskoy khimii AN SSSR.

ACCESSION NR: AT4035161

8/0000/63/000/000/0113/0124

AUTHOR: Tolstopyatova, A. A.

TITLE: Catalytic properties of the oxides of rare-earth elements

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Redkozemel'ny*ye elementy*
(Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 113-124

TOPIC TAGS: rare earth, alcohol, alcohol oxidation, dehydration, catalysis, dehydrogenation, tetralin, rare earth oxide, catalytic dehydrogenation

ABSTRACT: The rare-earth elements and especially their oxides can be used as catalysts in various organic reactions. In the present paper, the kinetics of the dehydrogenation and dehydration of ethyl, propyl, isopropyl and isobutyl alcohols and the dehydrogenation of tetralin over the oxides of La, Pr, Nd, Sm, Gd, Dy, Ho, Er, Tu and Yb were investigated. The activation energy of the above reactions, the relative adsorption coefficients of the dehydrogenation and dehydration products of isopropyl alcohol (hydrogen, acetone, propylene and water) and the relative adsorption coefficients of the products of the dehydrogenation of tetralin (hydrogen and naphthalene) were determined. The variations in the free energy ΔF , heat content ΔH and entropy ΔS of the processes of adsorptive substitution of the initial substance by the reaction products on the active surface of the catalyst were calculated and binding energy between the C, H and O atoms in the reagent molecules and the

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ACCESSION NR: AT4035161

active surface of the catalysts was determined. The experimental apparatus and methods are described. By the study of the activation energy of the different reactions and the selective action of the catalysts, a definite relationship was found between the structure of the reagent molecule and the kinetic characteristics in each of the catalysts studied. The method of preparation and the chemical nature of the catalyst also affect the kinetics of the dehydrogenation of tetralin and alcohols. Determination of the activation energy from the temperature dependence of the rate of formation of gaseous products in the case of small degrees of conversion gives a value for the activation energy which is close to the true value. Study of the thermodynamic functions on the catalytically active surface showed that the distribution of adsorption and catalytically active centers is the same, i. e., adsorption and catalysis are carried on at the same active centers. Orig. art. has: 7 figures, 5 tables and 4 formulas.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 31Oct63

DATE ACQ: 30Apr64

ENCL: 00

SUB CODE: IC, OC

NO REF SOV: 018

OTHER: 006

Card 2/2

TOLSTOPYATOVA, A.A.; BALADIN, A.A.; MATYUSHENKO, L.A.

Catalytic transformations of isopropyl alcohol and tetralin on gallium oxide. Izv.AN SSSR.Ser.khim. no.2:258-262 F '64.

(MIRA 17:3)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

BALANDIN, A.A.; TOLSTOPYATOVA, A.A.; YUY TSI-TSYUAN' [Yü Ch'i-ch'üan]

Kinetics of dehydrogenation and dehydration of isopropyl alcohol
and of dehydrogenation of tetralin on samarium oxide. Izv.AN SSSR.
Ser.khim. no.2:262-267 F '64. (MIRA 17:3)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

TOLSTOPYATOVA, A.A.; BALANDIN, A.A. YUY TSI-TSYUAN' [Yü Ch'i-ch'üan]

Catalytic properties of lanthanum oxide in the reactions of dehydrogenation and dehydration of alcohols and dehydrogenation of tetralin. Zhur. fiz. khim. 37 no.9:2034-2040 S '63.

(MIRA 16:12)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

TOLSTOPYATOVA, A.A.; YUY TSI-TSYUAN' [Yü Ch'i-ch'üan]; GORSHKOVA, L.S.

Catalytic properties of samarium oxide as applied in the
dehydrogenation and dehydration of alcohols and in the dehydrogenation
of tetralin. Izv.AN SSSR. Ser.khim. no.1:8-12 Ja '64.

(MIRA 17:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

TOLSTOPYATOVA, A.A.; BALANDIN, A.A.; YUY TSI-TSYUAN' [Yü Ch'i-ch'üan]

Kinetics of the dehydrogenation of isopropyl alcohol and of the
dehydrogenation of tetralin on neodymium oxide. Izv.AN SSSR.
Ser.khim. no.1:3-8 Ja '64. (MIRA 17:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.